1984

NATIONAL MARINE
FISHERIES SERVICE

GRANT-IN-AID FOR FISHERIES Program Activities

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1984

U.S.
DEPARTMENT
OF
COMMERCE

National
Oceanic and
Atmospheric
Administration

Cover Photo

Worlds record Red Drum, certified at 94 lbs., 2 oz. by The International Game Fish Association, caught at Cape Hatteras on November 7, 1984 by this happy angler, David G. Deuel, of Vienna, Virginia. This is a feat we are all proud of as Dave is a biologist in the Washington Office of the National Marine Fisheries Service.

U.S. DEPARTMENT OF COMMERCE

MALCOLM BALDRIGE, SECRETARY

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Anthony J. Calio, Deputy Administrator

National Marine Fisheries Service
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GRANT-IN-AID FOR FISHERIES PROGRAM ACTIVITIES 1984

Prepared by
Grant-in-Aid Staff
Office of Fisheries Management
Austin Magill, Editor

Washington, D.C.
May 1985

AUTHORIZATION

This report is submitted in compliance with the requirement of Section 9(a) of the Fish and Wildlife Act of 1956, as amended, 16 U.S.C. 742d(7) and Section 2 of the Anadromous Fish Conservation Act of 1965, as amended, 16 U.S.C. 757b.

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GRANT-IN-AID FOR FISHERIES

PROGRAM ACTIVITIES 1984

by

Grant-in-Aid Staff

INTRODUCTION

This is the 17th in a series of annual publications on program activities under the Grant-in-Aid for Fisheries Program of the Office of Fisheries Management, National Marine Fisheries Service (NMFS).

Information presented in this report provides State program coordinators and administrators, Federal personnel, project personnel, and others concerned with research, development, conservation, and management of our fishery resources with a convenient reference to the grant-in-aid program. This publication will also facilitate planning, coordination, and integration of State, Federal, and private sector activities concerned with the fishery resources.

THE ACTS

The NMFS Grant-in-Aid program is authorized under two Acts:

1. The Commercial Fisheries Research and Development Act of 1964 (Public Law 88-309 as amended) - Authorizes the Secretary of Commerce to cooperate with the 50 States, the Commonwealths of Puerto Rico and the Northern Mariana Islands, and the Governments of the Virgin Islands, Guam, American Samoa, and the Trust Territory of the Pacific Islands, in carrying out research and development of the Nation's commercial fisheries. Projects eligible for funding include research, development, construction, and coordination. Cost-sharing projects under subsection 4(a) are funded up to 75 percent level of Federal paticipation, whereas projects under subsection 4(b), to alleviate resource disasters, may be financed 100 percent with Federal funds. This Act would have expired June 1973; however, it was extended by Public Laws 92-590, 95-53, 96-62 and 97-389 for an additional 12 years, or to September 30, 1985. The authorized levels are $5 million for subsection 4(a), and $2.5 million for subsection 4(b).

2. The Anadromous Fish Conservation Act of 1965 (Public Law 89-304 as amended) - Authorizes the Secretary of Commerce and the Secretary of Interior to enter into cooperative agreements with States and other non-Federal interests for the conservation, development, and enhancement of the anadromous fishery resources of the Nation and the fish in the Great Lakes and Lake Champlain that ascend streams to spawn, and for the control of the sea lamprey. The program is administered at the Federal level jointly by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. Federal funds up to 50 percent, 66 2/3 percent when two or more States cooperate, or 90% to carry out projects required by interstate fishery management plans, may be used to finance project costs. State fishery agencies, colleges, universities, private companies, and other non-Federal interests in 31 States bordering the oceans and the Great Lakes may participate under the Act. All projects must be coordinated with the State fishery agency concerned. The authorization for this Act was renewed in January, 1983 by Public Law 97-453. This Act set authorized levels at $7.5 million for fiscal years 1983, 1984, and 1985 for grants under Section 4. Section 7, the emergency research program to study striped bass populations and to identify factors responsible for the current decline, was reauthorized for fiscal years 1985 and 1986 at $1 million each year by P.L. 98-613.

APPORTIONMENT OF FEDERAL FUNDS BY STATE AND AUTHORIZATION

Distribution of Federal funds to the States and others under the National Marine Fisheries Service grant-in-aid for fisheries program (Public Law 88-309 and Public Law 89-304) in Fiscal Year 1984, is given in the following tabulation: Cumulative total reflects funding since inception of the Programs.

STATE AND OTHERS	FY 1984		CUMULATIVE TOTAL		GRAND TOTAL
	P.L. 88-309	P.L. 89-304	P.L. 88-309	P.L. 89-304	
			($1,000)		($1,000)
ALABAMA	$ 120,400	$ 71,690	$ 3,720	$ 767	$ 4,487
ALASKA	240,000	505,000	4,742	8,118	12,860
ARIZONA	20,000	-	395	0	395
ARKANSAS	21,700	-	546	0	546
CALIFORNIA	240,000	395,000	4,742	5,505	10,247
COLORADO	20,000	-	395	24	419
CONNECTICUT	20,000	79,700	595	432	1,027
DELAWARE	29,200	-	536	84	620
FLORIDA	240,000	-	4,894	91	4,985
GEORGIA	64,500	-	1,655	141	1,796
HAWAII	34,100	-	636	0	636
IDAHO	20,000	-	514	0	514
ILLINOIS	20,000	-	407	21	428
INDIANA	20,000	-	395	0	395
IOWA	20,000	-	397	0	397
KANSAS	20,000	-	397	0	397
KENTUCKY	20,000	-	397	0	397
LOUISIANA	240,000	-	7,817	89	7,906
MAINE	190,700	64,860	3,554	813	4,367
MARYLAND	110,900	121,600	3,660	1,217	4,877
MASSACHUSETTS	240,000	65,000	4,942	713	5,655
MICHIGAN	20,000	15,000	866	539	1,405
MINNESOTA	20,000	-	485	23	508
MISSISSIPPI	167,200	30,500	3,832	409	4,241
MISSOURI	20,000	-	421	0	421
MONTANA	20,000	-	395	0	395
NEBRASKA	20,000	-	397	0	397
NEVADA	20,000	-	395	0	395
NEW HAMPSHIRE	32,200	65,000	605	1,253	1,858
NEW JERSEY	98,500	44,000	2,455	209	2,664
NEW MEXICO	20,000	-	397	0	397
NEW YORK	96,500	64,700	2,766	540	3,306
NORTH CAROLINA	80,500	64,000	1,223	888	2,111
NORTH DAKOTA	20,000	-	395	0	395
OHIO	35,800	-	1,036	96	1,132
OKLAHOMA	20,000	-	397	0	397
OREGON	86,500	572,300	2,467	7,349	9,816
PENNSYLVANIA	72,100	-	1,406	75	1,481
RHODE ISLAND	36,300	31,050	554	255	809
SOUTH CAROLINA	23,500	50,050	575	422	997
SOUTH DAKOTA	20,000	-	395	0	395
TENNESSEE	20,000	-	397	0	397
TEXAS	240,000	-	5,395	0	5,395
UTAH	20,000	-	395	0	395
VERMONT	20,000	-	395	0	395
VIRGINIA	150,900	123,300	4,012	1,640	5,652
WASHINGTON	154,200	572,300	3,396	8,114	11,510
WEST VIRGINIA	20,000	-	395	0	395
WISCONSIN	20,000	35,000	417	361	778
WYOMING	20,000	-	395	0	395
AMERICAN SAMOA	134,300	-	1,860	0	1,860
GUAM	20,000	-	395	0	395
PUERTO RICO	240,000	-	4,653	0	4,653
VIRGIN ISLANDS	20,000	-	397	0	397
TTPI [1]	20,000	-	177	0	177
NO. MARIANAS	20,000	-	139	0	139
PMFC [2]	-	55,400	0	330	330
N.W. INDIAN TRB.	-	-	0	223	223
ASMFC [3]	-	85,000	0	95	95
NMFS NE Center	-	89,550 [5]	0	90	90
TOTAL	4,000,000	$3,200,000 [4]	89,616 [6]	40,926	130,542 [6]

[1] Trust Territory of the Pacific Islands
[2] Pacific Marine Fisheries Commission
[3] Atlantic States Marine Fisheries Commission
[4] Includes Emergency Striped Bass Study Projects
[5] Includes administrative costs and contracts for Striped Bass Stock Identification
[6] Includes 4(b) disaster assistance funds

CLASSIFICATION OF FEDERAL AND STATE FUNDS BY ACTIVITY AND AUTHORIZATION

FISCAL YEAR 1984

Program activities cover various fields, including broad categories of research and development of commercial fisheries and conservation, development and enhancement of anadromous fishery resources. Eighty-three percent of the funds were used for research in such areas as the environment, freshwater finfish, marine finfish, and shellfish; 5.9 percent for collection of statistics; 3.9 percent for extension service; 2.5 percent for construction; and less than 3 percent for each of the other program activities. Funding figures shown include both State and Federal dollars for all 1984 project segments.

Activity	Public Laws		Total	
	88-309 ($1,000)	89-304 ($1,000)	Dollars ($1,000)	Percent (Total)
Aquaculture	351	-	351	2.8
Construction	232	80	312	2.5
Fish screens and stream improvement facilities	-	80	80	
Fisheries development and enhancement	232	-	232	
Coordination	62	-	62	0.5
Disease and parasite control	71	-	71	0.6
Extension service	500	-	500	3.9
Operation and maintenance	-	130	130	1.0
Research	6,422	4,086	10,508	82.8
Environment	447	-	447	
Finfish (Freshwater)	3,568	70	3,638	
Finfish (Marine or Anadromous)	1,328	3,924	5,252	
Shellfish	1,079	92	1,171	
Statistics	750	-	750	5.9
TOTAL	8,388	4,296	12,684	100.0

PROJECT TITLES BY STATE AND PUBLIC LAW

WITH OTHER PERTINENT INFORMATION

FISCAL YEAR 1984

All 50 states, the Commonwealths of Puerto Rico and the Northern Mariana Islands, the Governments of American Samoa, Guam, the Virgin Islands, and the Trust Territory of the Pacific Islands, and certain Northwest Indian tribes are participating in the program under one or both authorizations. In FY 1984, 39 projects were completed at an estimated total cost (State and Federal dollars combined) of $16,223,000; 125 projects were initiated or are continuing at an estimated cost of $28,076,000. The average Federal share of the Public Law 88-309 projects is 67 percent; the average Federal share of the Public Law 89-304 projects is 53 percent.

Tabulation of completed and continuing projects including total cost follows:

	Completed Projects		Continued Projects		Total Projects	
Public Law	Number	Total Cost	Number	Total Cost	Number	Total Cost
		$1,000		$1,000		$1,000
88-309	27	5,900	87	20,845	114	26,745
89-304	12	10,323	38	7,231	50	17,554
TOTAL	39	16,223	125	28,076	164	44,299

A list of continuing projects and those completed in 1984, under each authorization by State, including duration, date completed, and page reference for project narrative, is tabulated on pages 5 through 21. Under Public Law 88-309, project numbers identify the Region administering the project by the first digit, project number sequence within the Region by next digit(s), followed by a letter to denote activity as R-research, C-construction, D-development, and S-coordination. Under Public Law 89-304, the first two letters, "AF" identify the project as anadromous fish, with next letter "C" for projects administered by NMFS, or jointly funded projects with U.S. Fish and Wildlife Service (FWS) with NMFS as lead agency, and "CS" for jointly funded projects with FWS as lead agency, followed by a number sequence within each State.

Public Law	Project number	and title	Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	ALABAMA						
88-309	2-391-R	Research and management of Alabama coastal fisheries	1982	3	F-462,000 S-154,000		37
	2-403-D(4b)	Restoration of oyster resources lost during a natural disaster	1983	1	F-464,800 S- 0	1984	28
89-304	AFC-21	Improving yield of striped bass fingerlings through improved nutrition	1983	3	F-49,950 S-49,950		35
	AFCS-23	Alabama and Mississippi cooperative striped bass restoration program	1983	3	F-261,030 S-130,518 (Includes FWS share)		35
	ALASKA						
88-309	5-49-R	Gulf of Alaska - Bering Sea groundfish investigations	1983	4	F-321,300 S-216,200		32
	5-50-R	Stock assessment of Pacific herring, Bristol Bay, Alaska	1982	3	F-360,000 S-120,500	1984	33
	5-51-R	Pacific herring research - S.E. Alaska	1982	5	F-340,000 S-165,100		33
89-304	AFC-65	Chignik sockeye studies	1981	3	F- 84,100 S-108,600	1984	33
	AFC-67	Microwire tagging of wild coho salmon stocks	1981	5	F-530,000 S-452,300		33
	AFC-70	Southeastern Alaska sockeye salmon stock apportionment studies	1982	5	F-330,000 S-347,100		33
	AFC-71	Southeastern Alaska pink and chum studies	1982	5	F-627,900 S-824,700		33
	AFC-72	Southeastern Alaska port sampling	1982	5	F- 652,200 S-1,300,000		34

Public Law	Project number	and title	Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	AFC-73	Chignik Sockeye Studies	1984	3	F-90,000 S-90,000		34
	AMERICAN SAMOA						
88-309	4-63-D	Export fish marketing	1983	1	F-25,500 S- 0	1984	25
	4-65-D	PVC pipes bottomfish longlining	1983	1	F- 29,400 S- 0	1984	38
	4-67-D	Deployment of FAD system in American Samoa	1984	2	F- 95,000 S- 0		22
	4-70-D	Ta'u and OFU floating docks	1984	1	F-136,500 S- 0		23
	4-71-D	Fisheries data analysis	1984	1	F- 30,000 S- 0		43
	ARIZONA						
88-309	4-56-D	Distribution and relative abundance of freshwater clams	1982	2	F- 65,505 S- 21,835	1984	40
	4-72-D	Tilapia commercial fisheries assessment	1984	1	F- 20,250 S- 6,750		28
	ARKANSAS						
88-309	2-371-R	Commercial fishery survey	1980	6	F-165,348 S- 55,116		28
	ATLANTIC STATES MARINE FISHERIES COMMISSION						
89-304	AFC-1	Interstate management planning for shad and river herring resources	1984	2	F- 85,000 S- 42,500		31

Public Law	Project number	Project title	Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	CALIFORNIA						
88-309	4-59-D	Fisheries monitoring and assessment program	1982	3	F-340,035 S-113,346		38
	4-62-D	Southern California commerical fisheries assessment	1983	3	F-284,180 S- 94,727		38
89-304	AFC-16	Salmon and steelhead research, management and enhancement	1981	3	F-1,134,305 S-1,134,305	1984	34
	AFC-17	Salmon and steelhead management	1984	1	F-395,000 S-395,000		34
	COLORADO						
88-309	1-161-R	Baitfishes of Colorado	1981	4	F-18,276 S- 6,092		27
	1-169-R	Warm water fish culture	1983	3	F-105,000 S- 35,000		22
	CONNECTICUT						
88-309	3-374-R	Connecticut lobster investigations	1982	5	F-82,625 S-82,625		40
89-304	AFC-13	Population dynamics of American shad in the Connecticut River	1981	3	F-78,000 S-78,000	1984	31
	AFC-15	Population dynamics studies of American shad in the CT River	1984	3	F-150,000 S-150,000		32
	AFC-16	Emergency striped bass study	1984	1	F-29,700 S- 3,300		35
	DELAWARE						
88-309	3-358-D	Technical assistance to commercial fisheries	1982	3	F-183,400 S- 61,134		24

Public Law	Project number and title		Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	FLORIDA						
88-309	2-405-D	Fisheries extension and marketing services program	1983	4	F-700,000 S-233,333		24
	2-407-D	Oyster cultivation by reef construction and oyster transplanting program	1983	4	F-100,000 S- 33,333		41
	2-408-R	Florida's marine resources research, development and management program	1983	5	F-500,000 S-166,666		38
	GEORGIA						
88-309	2-390-R	Studies and assessment of Georgia's marine fisheries resources	1983	3	F-235,125 S- 78,375		42
	GUAM						
88-309	4-58-D	Development of polyculture fish farming	1982	3	F-60,000 S-48,884		22
	HAWAII						
88-309	4-57-D	Seaweed investigations	1982	3	F-135,000 S- 45,000		22
	4-64-D	Commercial fisheries statistics	1983	2	F-65,233 S-65,233		43
	IDAHO						
88-309	1-171-R	Proliferative kidney disease in rainbow trout	1983	3	F-90,030 S-27,511		24
	ILLINOIS						
88-309	3-373-R	Effects of fleeting areas on mussel beds	1982	3	F-27,358 S- 9,069		41

Public Law	Project number	and title	Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	3-383-R	Age structure and analysis of carp populations in the Mississippi and Illinois Rivers	1983	2	F-10,000 S- 3,334		27
	INDIANA						
88-309	3-387-R	Selected characteristics of the yellow perch stock in Indiana waters of Lake Michigan	1983	3	F-61,141 S-63,838		27
	IOWA						
88-309	2-399-R	Spawning and early life history of shovelnose sturgeon	1983	1	F-20,000 S- 6,667	1984	28
	2-414-R	Intensive culture of fishes with potential commercial importance to Iowa	1984	3	F-65,000 S-21,667		28
	KANSAS						
88-309	2-401-R	Kansas marketable fisheries investigation	1983	3	F-60,000 S-20,000		43
	KENTUCKY						
88-309	2-388-R	Population dynamics and biology of the paddlefish Polydon spathula in Lake Cumberland, KY.	1982	2	F-45,000 S-15,000	1984	28
	2-409-R	Trotline fishery survey of the Kentucky sections of Kentucky & Barkley Lakes	1984	1	F-20,000 S- 6,667	1984	28

Public Law	Project number and title		Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	LOUISIANA						
88-309	2-394-R	Research, development and management of Louisiana's coastal fisheries	1982	2	F-240,000 S- 80,000	1984	28
	2-406-D(4b)	Rehabilitation of natural oyster grounds destroyed or damaged by a natural disaster	1983	1	F-1,500,000 S- 0	1984	28
	2-412-R	Assessment & management of Louisiana's coastal fisheries	1984	3	F-720,000 S-240,000		29
	MAINE						
88-309	3-359-S	Coordination of research and development	1982	3	F-135,146 S- 45,049		23
	3-368-D	Fisheries technology service	1982	3	F-104,887 S-104,887		25
	3-370-R	Lobster stock assessment	1982	3	F-287,992 S-287,993		40
	3-378-R	Early life histories of commercial shrimp and fish	1983	3	F-169,994 S-169,994		38
	3-389-R	Brit herring tagging studies	1983	2	F- 6,865 S- 6,866		32
	3-390-D	Environmental monitoring system renovation	1983	1	F- 21,150 S- 21,150	1984	26
	3-396-D	Collection of landings data and biological sampling of commercial fisheries	1984	3	F- 41,825 S- 41,825		43
89-304	AFC-23	Kennebec River anadromous stock evaluation	1982	3	F-111,100 S-111,100		32
	AFC-24	Androscoggin River shad restoration, Maine	1982	3	F-181,024 S-181,024		32

Public Law	Project number	and title	Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	AFC-25	Population biology of the alewife	1983	3	F- 44,478 S- 44,479		31
	MARYLAND						
88-309	3-345-D	Maryland fisheries statistics	1980	5	F-554,217 S-554,217		43
	3-367-R	Monitoring & research of lethal oyster diseases in Chesapeake Bay	1983	1	F- 41,000 S- 41,000	1984	41
	3-398-R	Soft-clam disease and mortality investigations	1984	1	F- 55,000 S- 18,333		40
89-304	AFC-11	Striped bass research, Maryland (emergency striped bass research study)	1980	5	F-312,412 S-130,036		35
	AFC-14	Anadromous fish research, Maryland	1983	3	F-223,860 S-223,860		38
	MASSACHUSETTS					(Terminated)	
88-309	3-218-C	Construction of marine research station	1974	10	F-250,000 S-250,000	1984	23
	3-363-D	Commercial fisheries development program	1982	3	F-275,764 S- 91,921		25
	3-371-D	Collection, compilation, evaluation, and dissemination of Massachusetts fishery statistics	1982	3	F-232,832 S-108,721		44
	3-375-R	Massachusetts fishery resource assessment	1983	3	F-262,850 S-262,850		38
89-304	AFC-18	Characterization of Massachusetts striped bass landings (emergency striped bass research study)	1981	3	F- 51,281 S- 25,641	1984	35

Public Law	Project number	and title	Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	AFC-19	Anadromous fisheries management	1981	5	F-349,600 S-349,600		23
	AFC-20	Characterization of Massachusetts striped bass landings (emergency striped bass research study)	1984	1	F- 27,000 S- 3,000		36
	MICHIGAN						
88-309	3-384-R	Assessment of whitefish populations in the treaty area of Lake Michigan	1983	4	F-82,000 S-34,000		27
89-304	AFC-15	Evaluation of anadromus fish gilling mortality in trap nets	1984	4	F-60,000 S-60,000		38
	MINNESOTA						
88-309	3-344-R	Lake Superior commercial fisheries assessment studies	1981	4	F-51,300 S-17,100	1984	29
	3-392-D	Computerizing Minnesota commercial fishing statistics	1984	1	F- 6,875 S- 2,292		44
	3-393-R	Lake Superior commercial fisheries assessment studies	1984	1	F-39,375 S-13,125		29
	MISSISSIPPI						
88-309	2-393-R	Coastal fisheries monitoring and assessment - Mississippi coast	1982	3	F-420,000 S-140,000		42
	2-404-D (4b)	Rehabilitation of Mississippi oyster reefs damaged by floodwaters from the 1983 opening of the Bonnet Carre Spillway	1983	1	F-535,200 S- 0	1984	29

Public Law	Project number and title		Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	2-415-R	Experimental evaluation of sodium ricinoleate as an agent for the prevention of blue-green algal blooms & their off-flavor in commercial catfish ponds	1984	3	F-200,985 S- 66,995		22
89-304	AFCS-24	Mississippi and Alabama cooperative striped bass restoration program	1983	3	F-183,000 S- 91,503 (includes FWS share)		42
	MISSOURI						
88-309	2-363-R	Research and management of Missouri's commercial fisheries resources	1979	5	F-124,875 S- 41,625	1984	44
	2-416-R	Research and management of Missouri's commercial fisheries resource	1984	5	F-150,000 S- 50,000		29
	MONTANA						
88-309	1-162-R	Development and management of commercial fishing practices	1982	5	F-100,000 S- 31,664		29
	NEBRASKA						
88-309	2-402-R	Nebraska commercial fishery investigations	1983	3	F-112,382 S- 37,461		26
	NEVADA						
88-309	4-60-R	Production of sterile grass carp	1982	3	F- 56,794 S- 18,931		22
	NEW HAMPSHIRE						
88-309	3-381-D	Statistical data acquisition program for the marine fisheries of New Hampshire	1983	3	F-111,675 S- 37,225		44

Public Law	Project number and title		Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
89-304	AFC-6	Anadromous fish propagation	1983	3	F-300,000 S-300,000		25
	NEW JERSEY						
88-309	3-332-R	Inventory of New Jersey's estuarine shellfish resource	1979	6	F-201,472 S-201,472		42
	3-364-R	MSX disease and oyster production in Delaware Bay	1982	2	F- 72,000 S- 24,000	1984	24
	3-367-R	Life history investigations of marine fisheries	1982	3	F- 71,888 S- 26,962		39
	3-388-D	Marine fishermen's coordination project	1983	3	F-106,875 S- 35,625		25
89-304	AFC-6	Monitoring of the status of the striped bass in New Jersey (emergency striped bass research study)	1983	1	F- 20,000 S- 10,000	1984	36
89-304	AFC-7	Monitoring of the status of the striped bass population in New Jersey (emergency striped bass research study)	1984	1	F- 27,000 S- 3,000		36
	AFC-8	Anadromous herring run restoration	1984	1	F- 17,000 S- 17,000		31
	NEW MEXICO						
88-309	2-366-R	Intensive harvest of commercial species	1980	5	F-136,000 S- 45,334		29
	NEW YORK						
88-309	3-346-S	Coordination III	1981	3	F- 60,200 S- 68,800	1984	23
	3-355-D	Shellfish resource promotion	1982	3	F-156,000 S-156,000		42

Public Law	Project number	and title	Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	3-356-R	Assessment of New York's shellfish resources II	1982	3	F-169,750 S-169-750		42
	3-357-R	Investigation of the American lobster in eastern Long Island Sound	1982	2	F- 16,465 S- 16,465	1984	40
	3-360-D	Shellfish sanitation control utilizing mobile laboratories III	1982	3	F- 65,570 S- 65,570		42
	3-391-D	Enhancement of statistical programs for New York's commercial fisheries	1983	2	F- 20,000 S- 20,000		44
	3-394-S	Coordination IV	1984	3	F- 66,000 S- 66,000		23
	3-395-R	Monitoring commercial lobster catch in Long Island Sound	1984	3	F- 17,380 S- 17,380		40
89-304	AFC-11	Biology and management of striped bass in New York waters (emergency striped bass research study)	1980	4	F-250,357 S-126,561	1984	36
	AFC-12	A study of the striped bass in the marine district of New York IV	1982	3	F-176,340 S-176,340		36
	NORTH CAROLINA						
88-309	2-386-R	Assessment of North Carolina commercial finfisheries: Project I	1982	3	F-224,500 S- 74,834		39
89-304	AFC-18	An investigation of size, age and sex of North Carolina striped bass (emergency striped bass research study)	1980	4	F-103,334 S- 51,666		36
	AFCS-22	North Carolina anadromous fishery management program	1983	3	F-240,000 S-240,000		36

Public Law	Project number	and title	Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	AFC-25-1	Size, age and sex of North Carolina striped bass (emergency striped bass research study)	1984	1	F- 24,000 S- 12,000		36
	NORTHERN MARIANAS						
88-309	4-66-D	Fishery data collection II	1983	2	F- 60,000 S- 11,580		44
	OHIO						
88-309	3-301-R	Commercial fishing gear mortality	1978	6	F-171,765 S- 75,835	1984	29
	3-379-R	Ecology of yellow perch in Lake Erie	1983	3	F-192,000 S- 64,000		27
	OKLAHOMA						
88-309	2-410-R	Oklahoma commercial fisheries program	1984	5	F-125,000 S- 41,667		29
	OREGON						
88-309	1-174-R	Squid resource assessment	1984	3	F-195,550 S- 65,200		39
	1-180-R	Groundfish and shrimp assessment	1984	3	F-300,000 S-100,000		39
89-304	AFC-102	Research and development of Oregon's coastal fish stocks	1980	4	F-957,607 S-957,607	1984	34
	AFC-111	Regional Mark Processing Center	1981	3	F-165,000 S- 82,500	1984	34
	AFC-113	Joint Oregon-Washington multijurisdictional salmon management program	1981	3	F-965,607 S-482,804	1984	34

Public Law	Project number	and title	Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	AFC-117	Assessment of the ocean distribution and contribution of northern CA and southern OR fall chinook stocks	1981	3	F- 65,936 S- 65,936		34
	PENNSYLVANIA						
88-309	3-337-R	Guidelines for effective management of commercial fish hatchery wastewater treatment systems	1980	5	F-235,511 S- 78,504		26
	3-339-R	Lake Erie commercial fishery investigations	1980	4	F-223,731 S- 74,577	1984	30
	PUERTO RICO						
88-309	2-395-R	Puerto Rico commercial fisheries research and development program	1983	3	F-784-323 S-261,441		26
	RHODE ISLAND						
88-309	3-376-R	Coastal fishery resource assessment	1983	3	F- 86,400 S- 28,800		39
	3-400-R	Examination of bay scallop (Argopecten irradians) reproductive cycles	1984	3	F- 90,000 S- 90,000		41
89-304	AFC-4	Striped bass stock assessment in Rhode Island waters (emergency striped bass research study)	1981	4	F-111,050 S- 43,450		37
	SOUTH CAROLINA						
88-309	2-392-R	A biological evaluation of the knobbed whelk fishery in South Carolina	1982	2	F- 61,300 S- 20,433	1984	30

Public Law	Project number	and title	Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
89-304	AFC-20	Monitoring and assessment of the S.C. commercial fishery for shad (FY 1983)	1983	2	F-110,232 S-110,232	1984	32
	SOUTH DAKOTA						
88-309	1-173-R	An estimate of abundance and distribution of rainbow smelt in Oahe Reservoir using hydroacoustic techniques	1983	5	F-139,331 S- 46,444		30
	TENNESSEE						
88-309	2-373-R	Mussel resources survey	1980	4	F- 79,125 S- 26,375	1984	41
	2-413-R	Commercial fishery resource survey Kentucky reservoir	1984	1	F- 27,000 S- 9,000		30
	TEXAS						
88-309	2-400-R	Texas commercial fisheries management program	1983	3	F-789,985 S-263,328		30
	TRUST TERRITORY OF THE PACIFIC ISLANDS						
88-309	4-55-D	Truk Lagoon small purse seine demonstration	1982	3	F- 57,000 S- 19,000		39
	4-68-D	Marshall Islands data collection	1984	1	F- 18,000 S- 6,000		44
	4-69-D	Regional standardization of catch data	1984	1	F- 40,000 S- 13,334		45
	UTAH						
88-309	1-149-R	Physiological/genetic studies of trout strains in commercial and agency hatcheries	1979	5	F-121,800 S- 45,362	1984	24

Public Law	Project number	and title	Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	1-181-R	Susceptibility to parasitism of rainbow trout	1984	1	F- 17,800 S- 6,200		24
	1-182-R	Inspection and disease certification of commercial fish hatcheries	1984	1	F- 13,900 S- 4,600		24
	VERMONT						
88-309	3-399-R	Current status and effects of commercial fishing on American eel populations in Lake Champlain, Vermont	1984	2	F-38,684 S-14,365		26
	VIRGIN ISLANDS						
	2-335-R	Commercial fisheries research and development in the U.S. Virgin Islands	1978	5	F-134,205 S- 44,735	1984	39
88-309	2-411-R	Virgin Islands commercial fisheries research & development project	1984	5	F-125,000 S- 41,667		30
	VIRGINIA						
88-309	3-361-D	Fisheries resource statistics and information systems	1982	4	F-358,200 S-119,399		45
	3-377-D	Development of oyster resources	1983	1	F-30,646 S-10,215	1984	41
89-304	AFC-10	Anadromous fisheries research program, Virginia	1979	5	F-386,782 S-386,782	1984	31
	AFC-12	Striped bass research, Virginia (emergency striped bass research study)	1980	5	F-339,300 S-184,698		37
	AFC-13	Study of Alosa Stock composition and year class strength in VA	1984	3	F-231,000 S-231,000		31

Public Law	Project number and title		Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	AFC-14	Relative contribution of three Virginia rivers to spawning activity of striped bass in 1983 (emergency striped bass research study)	1984	1	F-15,000 S- 3,280		37
	AFC-15	Multivariate analysis of meristic characters of juvenile Alosa	1984	1	F- 11,900 S- 11,900		31
	AFC-16	A study of the striped bass commercial fisheries in the Rappahannock River, VA (emergency striped bass research study)	1984	1	F- 47,699 S- 22,243		37
	AFC-17	Virginia juvenile striped bass monitoring program (emergency striped bass research study)	1984	1	F- 49,301 S- 5,475		37
	WASHINGTON						
88-309	1-154-R	Coastal pink shrimp study	1979	5	F-110,432 S- 36,812	1984	41
	1-159-R	Coastal groundfish age determination	1981	3	F-103,000 S- 34,351	1984	32
	1-167-R	Coastal dungeness crab project	1982	3	F-110,434 S- 36,812		40
	1-168-R	Coastal marine fish/ shellfish	1982	3	F- 55,024 S- 18,342		43
	1-170-R	Coastal marine fish management and stock assessment	1983	3	F-190,082 S- 63,361		33
89-304	AFCS-104	Development of Cedar River sockeye and chinook enhancement facility	1979	5	F-1,255,000 S-1,362,000 (Includes FWS share)	1984	23

Public Law	Project number	and title	Date initiated	Duration	Estimated total cost	Date completed	Projected narrative
			Year	Year	Dollars	Year	Page
	AFC-114	Joint Washington-Oregon multijurisdictional salmon management program	1981	4	F-1,684,375 S- 842,188		35
	AFC-117	Ocean distribution of northern California and southern Oregon fall chinook	1981	3	F- 65,936 S- 65,936		35
	WEST VIRGINIA						
88-309	3-372-R	Commercial fishery investigations	1982	5	F- 33,750 S- 11,250		30
	3-380-R	Investigation of commercial invertebrate bait harvest	1983	3	F- 19,500 S- 9,453		43
	WISCONSIN						
88-309	3-382-R	Management of a quota controlled commercial chub fishery	1983	4	F- 80,000 S- 26,664		30
89-304	AFC-16	Assess walleye populations in Green Bay, Lake Michigan	1983	4	F-161,000 S-161,000		27
	WYOMING						
88-309	1-172-R	Commercial fishery development extension services	1983	4	F- 80,000 S- 26,672		25

PROGRAM ANALYSIS

For program analysis, projects are grouped under the type of activity undertaken rather than by State or Public Law. In doing so, the reader has all projects for the 1984 segment of the program, such as construction, coordination, or research, in one section.

Under each type of activity included are project identification, principal investigator, and 1984 project segment cost, State and Federal. If projects were continued or completed in 1984 with prior year funds, no cost is indicated below.

Request for additional information about a project or for reprints of reports resulting from the work should be made to the appropriate NMFS Regional Office, State agency, or Cooperator. The Regional Offices, State agencies, and Cooperators, including addresses are listed on pages 52-57.

AQUACULTURE

Colorado 1-169-R	Stephen A. Flickinger	F-27,366 S- 9,122

Warm water fish culture - Combined rearing of largemouth bass and black crappie.

Guam 4-58-D	Harry Kami	F-20,000 S- 0

Development of polyculture fish farming - Increase efficiency and expand production of local aquaculture farms.

Hawaii 4-57-D	Takuji Fujimura	F - 0 S - 0

Seaweed investigations - Develop procedure and determine economic feasibility of reestablishing Gracilaria in depleted areas of Hawaii.

Mississippi 2-415-R	Richard Leard	F-200,985 S- 66,995

Sodium ricinoleate evaluations - Experimental evaluation of Sodium Ricinoleate as an Agent for the prevention of blue-green algal blooms and their off-flavor in commercial catfish ponds.

Nevada 4-60-R	Robert E.L. Taylor	F-20,000 S- 6,667

Production of sterile grass carp - Develop surgical or chemical sterilization methods for grass carp and assess impact of transplanted stocks on aquatic environment.

CONSTRUCTION

FISHERIES DEVELOPMENT AND ENHANCEMENT

American Samoa 4-67-D	Henry Sesepasara	F - 95,000 S - 0

Deployment of FAD system in American Samoa - Construction and deployment of nine fishery aggregation devices.

American Samoa 4-70-D	Henry Sesepasara	F - 136,500 S - 0

Ta'u and Ofu floating docks - Purchase and installation of floating docks for the island fishermen of Ta'u and Ofu.

FISH SCREENS AND STREAM IMPROVEMENT FACILITIES

Massachusetts AFC-19	Joseph DiCarlo	F - 40,000 S - 40,000

Anadromous fisheries management - Maintain and enhance existing populations, restore historically important populations and establish new populations of anadromous fish, through construction of fish passage facilities.

HATCHERIES AND HATCHERY FACILITIES

Washington AFCS-104	Donald Bartlett	Terminated 1984

Development of Cedar River sockeye and chinook enhancement facility - Construct a hatchery, rearing station, fish ladder and caretaker's facilities on the Cedar River near Landsburg Dam.

LABORATORIES

Massachusetts 3-218-C	Leigh Bridges	Terminated 1984

Construction of marine research station - Construct a marine research station which will provide central facilities for personnel now located at several temporary installations on Cape Cod.

COORDINATION

Maine 3-359-S	E. Penn Estabrook	F - 11,178 S - 11,179

Coordination of research and development - Administer Maine's Public Law 88-309 program.

New York 3-346-S	Samuel L. Finkelstein	Completed 1984

Coordination III - Administer Public Law 88-309 projects.

New York 3-394-S	Samuel L. Finkelstein	F - 20,000 S - 20,000

Coordination IV - Provide administrative support to New York's P.L. 88-309 program.

DISEASE AND PARASITE CONTROL

Idaho 1-171-R	George Klontz	F-21,033 S- 7,011

Proliferative kidney disease in rainbow trout - Examine the epidemiology and phytopathology of PKD in an Idaho trout hatchery.

New Jersey 3-364-R	Harold H. Haskin	Completed 1984

MSX disease and oyster production in Delaware Bay - Provide current information on prevalence and intensity of MSX disease on oyster populations in Delaware Bay with a view toward modification of planting practices to minimize oyster disease losses.

Utah 1-149-R	Charles Berry	Completed 1984

Physiological/genetic studies of trout strains in commercial and agency hatcheries- Evaluate rainbow trout strains and rough fish for survival and disease resistance.

Utah 1-181-R	Charles Berry	F-17,775 S- 6,221

Susceptibility to parasitism of rainbow trout - Evaluate the susceptibility of 3 trout strains to Lernaea cyprinacea.

Utah 1-182-R	Ronald Goede	F-13,900 S- 4,600

Inspection and disease certification of commercial fish hatcheries - Inspect commercial trout hatcheries and monitor ovarian fluid for viral pathogens during egg-taking operations.

ENTENSION SERVICE

Delaware 3-358-D	Charles A. Lesser	F-35,078 S-11,693

Technical assistance to commercial fisheries - Provide technical assistance to commercial fishermen, seafood industries, and government authorities on management, enforcement, and dissemination of data to improve management and economics of Delaware's commercial fisheries industries.

Florida 2-405-D	Charles C. Thomas	F-157,149 S- 52,383

Create and develop educational materials for use in training- Create a greater demand for seafood. Enhance public image of mullet, Spanish mackerel, rock shrimp, shark, croaker, squid, dolphin, etc., introduce and encourage the purchase of same. Provide industry with technical assistance and market development. Increase economic impact to State by increasing new markets throughout the United States.

Maine 3-368-D	Frank Spencer	F-25,063 S-25,064

Fisheries technology service - Assist and disseminate information to the fishing industry of Maine on the latest developments in management, harvesting, and processing of renewable marine resources.

Massachusetts 3-363-D	Susan Faria/H. Arnold Carr	F-100,822 S- 33,607

Commercial fisheries development program - Promote the harvesting, processing, and consumption of underutilized species, identify and introduce new and efficient fishing and processing techniques, promote proper handling of seafood to improve quality of fresh product available to the public, and increase effectiveness of communications between government and industry.

New Jersey 3-388-D	John Makai	F-24,600 S- 8,200

Marine fishermen's coordination project- Provide communication pathway between commercial fishermen, processors, dealers, and New Jersey fisheries management agencies; address current concerns and needs of the commercial fishing industry which generates $170 million to the state's economy.

Wyoming 1-172-R	John Baughman	F-20,000 S- 6,668

Commercial fisheries development extension services - Assist and disseminate to the fishing industry and potential users concerning information on carp, sucker, and bait minnow populations in Wyoming reservoirs and streams.

MARKET DEVELOPMENT

American Samoa 4-63-D	Henry Sesepasara	Completed 1984

Export fish marketing - Provide central coordination for the development of an export market for American Samoa caught fish.

OPERATION AND MAINTENANCE

New Hampshire AFC-6	Peter E.. Brezosky	F-65,000 S-65,000

Anadromous fish propagation - Hatch and rear approximately 320,000 anadromous salmonids to accommodate fish cultural needs for the restoration of Atlantic salmon to the Merrimack River Basin and to generate a coastal recreational fishery for coho salmon and sea-run brown/rainbow trout.

RESEARCH

ENVIRONMENT

Marine:

Maine 3-390-D	Walter R. Welch	Completed 1984

Environmental monitoring system renovation - Provide data on marine environmental parameters critical to the assessment of events and biological conditions affecting the commercial fisheries.

Estuarine:

Nebraska 2-402-R	Gene Zuerlein	F-49,082 S-16,361

Nebraska commercial fishery investigations - To manage the commercial fishery permit system and to compile and analyze the reported production and catch statistics.

Freshwater:

Pennsylvania 3-337-R	Delano R. Graff	F-23,323 S- 7,775

Guidelines for effective management of commercial fish hatchery wastewater treatment systems - Evaluate different types of wastewater treatment systems to assist the commercial fish growers.

Puerto Rico 2-395-R	Carlos Cumpiano	F-263,051 S- 87,684

Puerto Rico commercial fisheries research & development program - (1) Survey shallow water reef fishes at selected areas round the island to determine distribution, abundance, seasonality, and population fluctuation throughout the year cycles of selected commercially important shallow water reef fish populations. (2) Record of fish landings will be made by species and gear in order to provide information on species' composition, relative abundance, and gear catch efficiency. Publications, quarterly bulletins and correspondence will be provided to interested persons and agencies for the benefit of the fishing industry. The project will continue to furnish data for inclusion in the annual summary of U.S. fisheries statistics. (3) To provide with the required routine operations and maintenance for the physical facilities where the Puerto Rico Fisheries Research and Development Program activities are based.

FINFISH (FRESHWATER)

American eel

Vermont 3-399-R	George W. LaBar	F-19,760 S- 7,338

Current status and effects of commercial fishing on American eel populations in Lake Champlain, Vermont - Determine size, age structure, and growth rates of American eel populations in Keeler and Converse Bays, and determine impact of commercial fishery on the Keeler Bay population.

Baitfish:

Colorado 1-161-R	John Woodling	F-8,448 S-2,816

Baitfishes of Colorado - Prepare and publish a manual on identifying, rearing and using the baitfish resources of Colorado.

Carp:

Illinois 3-383-R	K.S. Lubinski	F-0 S-0

Age structure and analysis of carp populations in the Mississippi and Illinois Rivers - Characterize the age structure of carp populations in selected Mississippi and Illinois River pools to explain recent declines in the number and size of harvested fish.

Walleye:

Wisconsin AFC-16	Lee Kernen	F-35,000 S-35,000

Assess walleye populations in Green Bay, Lake Michigan - Maintain, through a stocking and assessment program, an adult walleye standing stock of at least four per acre in Green Bay, while providing a sustained commercial harvest of 10,000 pounds or more annually in Lake Michigan.

Yellow perch:

Indiana 3-387-R	Thomas S. McComish	F-20,008 S-20,008

Selected characteristics of the yellow perch stock in Indiana Waters of Lake Michigan - Determine abundance, age and growth, size at sexual maturity, food habits, and fecundity of yellow perch in Indiana waters of Lake Michigan.

Ohio 3-379-R	F. Joseph Margraf	F-63,750 S-21,250

Ecology of yellow perch in Lake Erie - Determine whether management models for yellow perch in Lake Erie can be improved by examining the relative importance of food availability and temperature as factors causing differences in growth rates between western and central basin populations.

Whitefish:

Michigan 3-384-R	R.W. Rybicki	F-21,000 S- 7,000

Assessment of whitefish populations in the treaty area of Lake Michigan - Monitor whitefish harvest in the commercial trapnet fishery, determine relative abundance of pre-recruits, and forecast the total allowable yield of whitefish in the treaty waters of Lake Michigan.

Others:

Alabama 2-403-D(4b)	Hugh Swingle	F-464,800 S- 0

To restore oyster resources lost during the floods entering Mobile Bay during the period from December 1982 through mid-June 1983.

Arizona 4-72-D	Bruce D. Taubert	F-20,250 S- 6,750

Tilapia commercial fisheries assessment - Evaluation of the resource potential of Tilapia stocks in Arizona's agricultural drains, canals, and in the lower Colorado River.

Arkansas 2-371-R	Tommie Crawford	F-21,700 S- 7,200

Commercial fishery survey - Gather data and compile information concerning the status of wild commercial fishery resource and evaluate regulations for commercial fishing.

Iowa 2-399-R	John C. Nickum	Completed 1984

To determine the habitats and other physical factors required by shovelnose sturgeon during their first year of life in order to protect and enhance productivity of this commercial species.

Iowa 2-414-R	John C. Nickum	F-65,000 S-21,667

To determine the effects of selected cryoprotectants, diluents, freezing rates, storage temperatures, storage times and thawing rates on the development, hatchability, and subsequent growth of channel catfish embryos, and determine the survival and growth of first feeding walleye fry and fingerlings fed selected formulated feeds under intensive rearing conditions.

Kentucky 2-388-R	Robert D. Hoyt	Completed 1984

Population dynamics and biology of the paddle fish Polydon spathula in Lake Cumberland, KY - Estimate the size of the paddlefish population using mark and recapture methods.

Kentucky 2-409-R	Tom Timmons	Completed 1984

To estimate the harvest from a creel survey on the lakes and a mail survey to licensed commercial fishermen.

Louisiana 2-394-R	William S. Perret	Completed 1984

Research, development, and management of Louisiana's coastal fisheries - To complete and maintain a network of permanent survey monuments throughout coastal Louisiana for the purpose of surveying oyster leases.

Louisiana 2-406-D(4b)	William S. Perret	Completed 1984

To plant 100,000 cubic yards of clam shell on approximately 2,000 acres (50 cubic yards per acre) in selected areas within "Public Oyster Seed Grounds" in St. Bernard, Plaquemine and Terrebonne parishes.

Louisiana 2-412-R	Claude Boudreaux	F-720,000 S-240,000

To maintain a coastwide program which monitors relevant parameters of economically important seafood resources.

Minnesota 3-344-R	John Spurrier	Completed 1984

Lake Superior commercial fisheries assessment studies - Ascertain and monitor the status of lake trout and commercial fish stocks (lake herring, chubs, smelt) in the Minnesota waters of Lake Superior.

Minnesota 3-393-R	John Spurrier	F - 13,125 S - 4,375

Lake Superior commercial fisheries assessment studies - Ascertain and monitor the status of the lake trout and commercial fish stocks in the Minnesota waters of Lake Superior. Project data will be analyzed to aid decision making in the rehabilitation and utilization of these resources.

Mississippi 2-404-D(4b)	Frederick Deegen	Completed 1984

To plant 50,000 cubic yards of clamshells on approximately 3,000 acres in selected areas in the western portions of Mississippi Sound for rehabilitation of oyster reefs damaged by floodwaters.

Missouri 2-416-R	Timothy P. Grace	F-150,000 S- 50,000

To determine the number of commercial fishermen, pounds of fish harvested and the wholesale value of Missouri's river commercial fisheries; by gear type, county, and by river open to commercial fishing. Determine live-weight wholesale value.

Montana 1-162-R	Robert Needham	F-25,333 S- 6,333

Development and management of commercial fishing practices - Assess the commercial and gamefish species in Fort Peck reservoir.

New Mexico 2-366-R	Bob Patterson	F-24,401 S- 8,134

Intensive harvest of commercial species - Determine the effect of intensive harvest of white suckers on the fish populations in trout lakes.

Ohio 3-301-R	Michael R. Rawson	Completed 1984

Commercial fishing gear mortality- Determine the effects of season, area, catch size, and net time on immediate mortality of commercial gear net-released fishes and develop management proposals.

Oklahoma 2-410-R	Mark Ambler Hutchie Weeks	F-125,000 S- 41,667

To monitor selected fish populations in lakes undergoing commercial harvest in Oklahoma and collect & analyze commercial fishery harvest results.

Pennsylvania 3-339-R	Roger Kenyon	Completed 1984

Lake Erie commercial fishery investigations - Investigate year class fluctuations and early life histories of yellow perch, smelt, drum, whitefish, and walleye.

South Carolina 2-392-R	Bill Anderson	F-23,500 S- 7,834

A Biological Evaluation of the Knobbed Whelk Fishery in South Carolina - (1) to determine selected biological characteristics of commercially harvested whelks; (2) To evaluate populations exposed to continued or increased exploitation; and (3) To prepare a written technical report incorporating the findings and data resulting from the project.

South Dakota 1-173-R	David Hamm	F-30,201 S-10,067

An estimate of abundance and distribution of rainbow smelt in Oahe Reservoir using hydroacoustic techniques - Obtain baseline data and develop management methodology.

Tennessee 2-413-R	John Condor	F-27,000 S- 9,000

To gather data on the currently exploited commercial fish stocks and harvest in Kentucky Reservoir (Tennessee River). The primary species of concern will be catfishes and buffalo fish. This data will include population level, size and age structure of the population, size and age structure of the harvested fishes, and a harvest estimate.

Texas 2-400-R	Richard Benefield (shrimp) Paul Hammerschmidt (blue crab)	F-787,985 S-263,328

To determine the status of shellfish populations to assist the Texas legislature in formulating management regulations and to recommend shellfish harvest regulations for coastal waters under the management jurisdiction of the Texas Parks and Wildlife Commission. To determine the status of shrimp populations in the Gulf of Mexico off Texas.

Virgin Islands 2-411-R	Ileana Clavijo	F-125,000 S- 41,667

Assessment of the population dynamics of snapper/grouper spawning aggregations to identify areas used for spawning to determine the seasonality and assess the fishing pressure on aggregations to recommend management plans. Baitfish survey to determine seasonality, species, composition, abundance, distribution & commercial value in order to achieve the optimum sustained use of this resource.

West Virginia 3-372-R	Fred Leckie	F- 6,750 S- 2,250

Commercial fishery investigations - Administer and monitor the Ohio River commercial fishery in West Virginia.

Wisconsin 3-382-R	Lee Kernen	F-20,000 S- 6,666

Management of a quota-controlled commercial chub fishery - Determine the population parameters required to annually calculate harvest quotas for the Lake Michigan commercial chub fishery with the ultimate objective of sustaining a harvest of 4 million pounds per year by 1991.

FINFISH (MARINE OR ANADROMOUS)

Alewife and herring:

Maine AFC-25	C.J. Walton	F-15,726 S-15,727

Population biology of the alewife - Monitor parameters of the Damariscotta River alewife stock and develop a population model to evaluate priorities for alewife management.

New Jersey AFC-8	Paul E. Hamer	F-17,000 S-17,000

Anadromous herring run restoration - Identify and evaluate New Jersey coastal watersheds on the basis of potential for enhancement and/or restoration of anadromous clupeid populations.

Virginia AFC-10	Joseph G. Loesch	Completed 1984

Anadromous fisheries research program, Virginia - To collect catch and effort statistics from the Virginia river herring, American shad, and striped bass fisheries and determine indices of juvenile abundance to update the existing data base.

Virginia AFC-13	Joseph G. Loesch	F-77,000 S-77,000

Study of Alosa stock composition and year class strength in Virginia - Collect harvest and biological data for analysis of alosid (alewife, American shad, and blueback herring) populations in Virginia coastal waters and evaluate annual relative abundance, growth, and mortality of juvenile Alosa stocks. Study results will contribute to the data base essential for the development of an interjurisdictional (multi-state) management plan for these fisheries.

Virginia AFC-15	Joseph G. Loesch	F-11,900 S-11,900

Multivariate analysis of meristic characters of juvenile Alosa - Assess the possible existence of racial stocks of alosids (alewife, American shad, and blueback herring) in major Virginia tributaries to Chesapeake Bay for development of appropriate fisheries management strategies.

American shad:

ASMFC AFC-1 (Atlantic States Marine Fisheries Commission)	Paul Perra	F-85,000 S-42,500

Interstate fisheries management planning for shad and river herring - Identify and assess management options and research needs relative to the formulation of an interjurisdictional approach for conserving Atlantic coastal stocks of American/hickory shad, alewife, and blueback herring.

Connecticut AFC-13	Victor Crecco	Completed 1984

Population dynamics of American shad in the Connecticut River - Determine levels of commercial fishing effort which furnish the highest sustainable yields and ensure an adequate spawning population; project the size of future spawning runs and gain insight into stock recruitment.

Connecticut AFC-15	Victor Crecco	F-50,000 S-50,000

Population dynamics studies of American shad in the Connecticut River - Monitor annual fluctuations in shad population size and commercial fishing mortality to appraise the current stock status, understand the causes of long-term population trends, and corroborate or refute current lines of research.

Maine AFC-23	Thomas Squiers	F-24,671 S-24,671

Kennebec River anadromous stock evaluation - Determine relative abundance indices for juvenile alosids and draft an Anadromous Fish Restoration Plan for the Kennebec River.

Maine AFC-24	Lewis N. Flagg	F-38,562 S-38,562

Androscoggin River shad restoration, Maine - Restore anadromous fish runs to the Androscoggin River, determine timing/magnitude/reproductive success of anadromous clupeid runs, and assess upstream fish passage efficiency.

South Carolina AFC-20	Glenn Ulrich	F-64,732 S-64,732

Monitoring & assessment of the South Carolina commercial fishery for shad (FY83) - Collect catch/effort indices of abundance of American shad for determination of stock status. Monitor age, size and sex composition of shad on major river systems and in the near-shore, ocean fishery. Collect commercial landings data from the network of outlets. Maintain and expand network of cooperating wholesale and retail outlets, marketing shad to provide comprehensive catch data. Compare statistic of shad caught in 4 1/2" and 5 1/2" mesh drift gill nets. Estimate spawning run by sampling the commercial catch. Investigate hickory shad resources of Waccamaw-Pee Dee River system, collecting life history.

Atlantic herring:

Maine 3-389-R	David A. Libby	F-0 S-0

Brit herring tagging studies - Refine brit tagging methods and assess movement patterns to determine geographical and seasonal contributions of brit to the commercial fishery.

Groundfish:

Alaska 5-49-R	Phil Rigby	F-44,700 S-37,600

Gulf of Alaska - Bering Sea groundfish investigations - Collect landing data for groundfish caught off Alaska. Provide increased reporting accuracy of vessels, catch areas, and species composition, to gain better knowledge of the fisheries and status of stocks.

Washington 1-159-R	Mark Pedersen	Completed 1984

Coastal groundfish age determination - Collect information for groundfish management plan data base.

Washington 1-170-R	Al Millikan	F-64,478 S-21,493

Coastal marine fish management - Collect and analyze stock assessment data from port samplers, log books and research cruises to implement and monitor the Pacific Fishery Management Council groundfish management plan.

Pacific herring:

Alaska 5-50-R	Stephen M. Fried	F-120,000 S- 40,500

Stock assessment of Pacific herring, Bristol Bay, Alaska - Monitor the commercial Pacific herring roe fishery in the vicinity of Togiak Bay, western Alaska. Estimate biomass of spawning herring and estimate commercial fishery exploitation rate. Determine age composition, size, and sexual maturity of Pacific herring on the spawning grounds and harvested by the commercial fishery.

Alaska 5-51-R	Dennis Blankenbeckler	F-60,000 S-20,000

Pacific herring research - S.E. Alaska - Monitor the commercial Pacific herring roe fishery in southeast Alaska. Assess stock abundance with hydroacoustical equipment. Collect data on age, growth, and length frequencies. Survey spawning grounds to assess spawning success.

Pacific salmon

Alaska AFC-65	Donald E. Rogers	Completed 1984

Chignik sockeye studies - Estimate late season escapements of sockeye salmon into Chignik River on the Alaska Peninsula. Determine how prey selection behavior of sockeye salmon juveniles in Chignik Lake affects daily ration as a preliminary step to developing a growth and survival model for sockeye salmon juveniles in the lake.

Alaska AFC-67	Philip Gray	F-113,600 S-113,600

Microwire tagging of wild coho salmon stocks - Evaluate and refine management techniques for wild coho salmon stocks in southeast Alaska through coded wire tagging studies.

Alaska AFC-70	Fred Bergander	F-72,900 S-72,900

Southeastern Alaska sockeye salmon apportionment studies - Collect information for the management of salmon fisheries and to construct a data base for forecasting timing and size of salmon runs and allocating salmon stocks to commercial fisheries. Provide a mark-recovery and biological sampling program for decision making.

Alaska AFC-71	Doug Jones	F-154,600 S-154,600

Southeastern Alaska pink and chum salmon studies - Insure optimum escapement of pink and chum salmon spawners into streams of southeast Alaska. Forecast timing, distribution, and magnitude of pink and chum salmon returns. Investigate and define relationships between environmental fluctuations of salmon returns.

Alaska AFC-72	Scott Marshall	F-133,900 S-207,200

Southeastern Alaska port sampling - Determine migration routes, run timing, relative abundance, and contribution rates based on data obtained from results of coded wire tag recoveries.

Alaska AFC-73	Donald E. Rogers	F-30,000 S-30,000

Chignik Sockeye Studies - Monitor and determine the importance and dynamics of late season runs of sockeye and coho salmon that return to Chignik Lake on the Alaska Peninsula. Investigate the feasibility of maintaining the weir on Chignik River through mid-September to calibrate methods for estimating late season escapement.

California AFC-16	A.C. Knutson, Jr.	Completed 1984

Salmon and steelhead research, management and enhancement - (1) Determine numbers and pounds of commercial salmon landings and the contribution of marked and hatchery reared fish to the fishery. (2) Determine the spawning stock size - recruitment relations for Klamath basin salmon and steelhead.

California AFC-17	Paul Hubbell	F-395,000 S-395,000

Salmon and steelhead management - (1) Ocean salmon commercial and recreational port sampling (2) Assessment of Klamath River salmon and steelhead returns (3) Assessment of Klamath River outmigration (4) Coordinate and develop salmonid habitat protection and rehabilitation strategies for wild and scenic rivers and (5) Establish sediment trap between Grass Valley Creek and Steelbridge on the Trinity River.

Oregon AFC-102	Jim Lichatowich	Completed 1984

Research and development of Oregon's coastal fish stocks - Conduct field investigations on fall chinook and coho in the Sixes, Coquille and Elk Rivers.

Oregon AFC-111	John Harville	Completed 1984

Regional Mark Processing Center - Operate the Regional Mark Processing Center for identification of salmon stocks tagged, released and recovered in west coast fisheries.

Oregon AFC-113	Steve Lewis	Completed 1984

Joint Oregon-Washington multijurisdictional salmon management program - Tag hatchery and wild stocks; monitor the commercial and recreational ocean salmon catch at all Oregon landing ports, recover tagged fish, remove and decode tags and enter information in agency computers.

Oregon AFC-117	John Harville	F-36,936 S-36,936

Assessment of the ocean distribution and contribution of northern California and southern Oregon fall chinook stocks - Initiate a logbook program and a concentrated tag recovery effort for depressed Klamath River fall chinook stocks in response to management needs of the Pacific Fishery Management Council.

Washington AFC-114	Lee Blankenship	F-124,000 S- 62,000

Joint Washington-Oregon multijurisdictional salmon management program - Tag hatchery and wild stocks; monitor the commercial and recreational ocean salmon catch at Washington landing ports, recover tagged fish, remove and decode tags and enter information in agency computers.

Washington AFC-117	John Harville	F- 36,936 S- 36,936

Ocean distribution of northern California and southern Oregon fall chinook- Initiate a logbook program and a concentrated tag recovery effort for depressed Kalamath River fall chinook stocks.

Striped bass:

Alabama AFC-21	R.T. Lovell	F- 20,200 S- 20,200

Development of the digestive tract of striped bass will be studied histologically and enzymatically from hatching until maturity.

Alabama AFCS-23	R. Vernon Minton	F-102,980 S- 51,492

To rear striped bass eggs or sac fry to Phase I size fingerlings for stocking hatchery pond and to produce Phase II fingerlings 20g or larger for tagging and stocking. Harvest, mark and stock equally Phase II striped bass fingerlings into coastal streams. To monitor and assess the effects of past and present stocking of striped bass fingerlings.

Connecticut AFC-16	Robert Sampson	F- 29,700 S - 3,300

Emergency striped bass study - Obtain information on the geographical/temporal distribution, catch/effort, size, and age composition of Connecticut's striped bass harvest by means of a targeted creel census and collect biological samples for stock identification analyses.

Maryland AFC-11	Harley Speir	F- 57,000 S- 7,478

Striped bass research, Maryland - Characterize the age, sex, and size composition of striped bass in spawning areas and in the Chesapeake Bay commercial fishery; develop data on stock abundance that can be used in modeling stock responses to coastal regulations; and collect specimens of Chesapeake Bay striped bass for stock identification analyses.

Massachusetts AFC-18	Randall Fairbanks	Completed 1984

Characterization of Massachusetts commercial striped bass landings - Determine age and sex by season and location of commercially caught striped bass in Massachusetts waters.

Massachusetts AFC-20	Paul Diodati	F- 27,000 S- 3,000

Characterization of Massachusetts striped bass landings- Determine age, size, and sex by season and location of commercially caught striped bass in Massachusetts waters; this activity continues a catch sampling program established as part of a coastwide monitoring system aimed at generating a time-series data base essential to improved management of the striped bass resource.

New Jersey AFC-6	Peter J. Himchak	Completed 1984

Monitoring of the status of the striped bass population in New Jersey - Monitor striped bass recruitment in the Delaware River, identify nursery habitat, and characterize landings in the recreational fishery.

New Jersey AFC-7	Peter J. Himchak	F- 27,000 S- 3,000

Monitoring of the status of the striped bass population in New Jersey - Estimate recruitment of young-of-the-year striped bass in the Delaware River and characterize by age, sex and size the striped bass fishery in New Jersey waters.

New York AFC-11	Robert E. Brandt	Completed 1984

Biology and management of striped bass in New York waters - To provide useful and vitally needed information for development of interim regulations for striped bass conservation and management in state waters.

New York AFC-12	Byron Young	F- 64,700 S- 64,700

A study of the striped bass in the marine district of New York State IV - Continue collection of size, age, and sex data for the striped bass fishery, assess the effectiveness of management strategies in New York, and study striped bass production in the Hudson River to provide indices of year-class strength.

North Carolina AFC-18	Michael W. Street	F- 24,000 S- 12,000

An investigation of size, age, and sex of North Carolina striped bass - To determine size, age, and sex of striped bass found in the Roanoke River, Albemarle Sound and the Atlantic ocean off North Carolina.

North Carolina AFCS-22	Sara E. Winslow	F- 40,000 S- 40,000

To obtain information needed to manage the fishery for shads and river herring in North Carolina. To obtain information on striped bass and determine the effects of stocking juvenile striped bass on natural coastal striped bass populations and on the striped bass fisheries.

North Carolina AFC-25	Sara E. Winslow	F- 24,000 S- 12,000

Size, age, and sex of North Carolina striped bass - Sample striped bass from the Albemarle Sound, Atlantic Ocean, and Roanoke River fisheries to determine size, age and sex of the fish harvested. Project results will be utilized to monitor the status of these severely depressed populations as management actions are taken to help the stocks recover.

Rhode Island AFC-4	John F. O'Brien	F- 31,050 S- 3,450

Striped bass stock assessment in Rhode Island waters- Characterize the composition of Rhode Island striped bass commercial landings to help assess the current status of coastal stocks and determine the level of exploitation by various fisheries.

Virginia AFC-12	Robert K. Dias	F-0 S-0

Striped bass research, Virginia - To establish relative numbers of juvenile striped bass and identify cohabitant species in the James, York, and Rappahannock River systems.

Virginia AFC-14	John E. Olney	F- 15,000 S- 3,250

Relative contribution of three Virginia rivers to spawning activity of striped bass in 1983 - Determine striped bass egg and larval abundance and calculate egg production estimates in the James, Rappahannock, and Pamunkey Rivers based upon analyses of ichthyoplankton samples collected during 1983.

Virginia AFC-16	Joseph G. Loesch	F- 47,699 S- 22,243

A study of the striped bass commercial fisheries in the Rappahannock River, Virginia - Characterize the composition of striped bass by sex, age, length, and weight in the Rappahannock River commercial gill/pound net fisheries. Data collected will be used for determination of population parameters (growth, survival and recruitment) to further assess the decline of commercial striped bass landings in Virginia since 1973.

Virginia AFC-17	James A. Colvocoresses	F- 49,301 S- 5,475

Virginia juvenile striped bass monitoring program - Monitor the abundance of young-of-the-year striped bass in the James, York, and Rappahannock River systems and examine relationships between juvenile abundance and environmental variables. These data will augment existing data from previous surveys and will provide an updated information base for investigating the decline of striped bass stocks in Virginia waters.

Others:

Alabama 2-391-R	Walter M. Tatum	F-129,150 S- 43,050

Research and management of Alabama coastal fisheries - Project (1) Monitor the abundance of post larval, larval, juvenile and adult shrimp, fish, crabs and oysters; assess and monitor stages of penaeid shrimp, blue crab and fish, in Alabama waters and recommend harvest and management regulations. Project (2) to review and appraise the environmental degradation potential or possible benefits arising from proposed construction and development in coastal Alabama. Develop public awareness of importances of the estuarine area and its' related ecosystem of the coastal fisheries resources. Project (3) Spawn and produce larvae from marine species deemed to possess mariculture potential in Alabama including, but not limited to, the following species: gulf killifish, red drum, spotted seatrout, red snapper, Florida pompano and southern flounder. Rear fish produced in ponds.

American Samoa 4-65-D | Henry Sesepasara | Completed 1984

PVC pipes bottomfish longlining - Determine the effectiveness of a new longlining method in American Samoa waters.

California 4-59-D | Richard Klingbeil | F-0 S-0

Fisheries monitoring and assessment program - Monitoring, assessment, and evaluation of the commercial fisheries of Southern California.

California 4-62-D | Michael Herder | F-0 S-0

Southern California commercial fisheries assessment- Monitoring of fresh fish markets and assessment of interactions between the drift gill net shark and swordfish fishery and marine mammals.

Florida 2-408-R | Karen Steidinger | F- 78,090 S- 26,030

Determine size composition and movements of blue crab in Apalachee Bay, Charlotte Harbor and 10,000 Islands. Determine handedness, claw breakage and regeneration of stone crabs harvested by Florida west coast fishermen. Determine genetic identity of various stocks of red drum to assess the hypothesis of multiple isolated populations. Determine age, growth, reproduction, etc., for groupers; and effects of current fishery practices of sublegal spiny lobsters.

Maine 3-378-R | David B. Sampson | F-45,226 S-45,226

Early life histories of commercial shrimp and fishes - Study relationship between growth and survival of larval shrimp and fishes and the abundance and quality of other planktonic organisms; also, assess recruitment of juvenile groundfish from inshore concentrations to offshore adult populations.

Maryland AFC-14 | C.J. O'Dell | F-74,620 S-74,620

Anadromous fish research, Maryland - Conduct spawning stock assessment of anadromous fish populations in the Choptank and Susquehanna Rivers, monitor commercial landings of alewife and blueback herring in Fishing Bay, and investigate adverse watershed conditions which affect migratory passage.

Massachusetts 3-375-R | Arnold B. Howe | F-82,350 S-82,350

Massachusetts fishery resource assessment - Collect information on abundance, distribution, and size composition of the fishery stocks in Massachusetts coastal waters to provide essential data for managing marine fishery resources in territorial waters and the Fishery Conservation Zone.

Michigan AFC-15 | Gerald Rakoczy | F- 15,000 S- 15,000

Evaluation of anadromous fish gilling mortality in trap nets - Evaluate the gilling mortality rate of standard and modified large trap nets by species and numbers gilled, season, and depth. Study data will be evaluated to determine the need for additional management and regulatory measures to enhance the conservation of anadromous fish species in Lake Michigan.

New Jersey 3-367-R	Paul G. Scarlett	F-24,600 S- 8,200

Life history investigations or marine fisheries - Determine migrations, seasonal movements, and stock identification of winter flounder and blue crabs from selected New Jersey estuaries, and assess the distribution of flounder harvest between commercial and recreational fishermen.

North Carolina 2-386-R	Michael W. Street	F-71,700 S-23,900

Assessment of North Carolina commercial finfisheries: Project I: Determine relative abundance, growth, ages, species composition, distribution and migration of species in the long haul and pound net fisheries of the Pamlico Sound area and the winter trawl fishery in the territorial sea. Project II: Determine the number of populations of Atlantic croaker in an area between Chesapeake Bay and South Carolina. To determine the degree of intermixing of populations in this area. Project III: Obtain data on migration and stock identification of Micropogonia undulatus.

Oregon 1-180-R	Robert Demory	F-127,550 S- 42,550

Groundfish and shrimp assessment - Collect and analyze fishery and research data to determine stock size, yield, catch per unit effort, and mortality rates.

Oregon 1-174-R	Robert Demory	F- 38,000 S- 12,700

Squid Resource Assessment - Monitor squid landings to characterize stocks, map areas of harvest and begin population modelling studies.

Rhode Island 3-376-R	Timothy R. Lynch	F-28,800 S- 9,600

Coastal fishery resource assessment - Collect fishery statistical data for the development of recruitment indices for commercial stocks in Rhode Island coastal waters needed for designing management measures in State and Federal waters which are responsive to year class fluctuations and the dynamics of the respective fisheries.

Trust Territory 4-55-D	Marian Henry	F-0 S-0

Truk Lagoon small purse seine demonstration - Development of small purse seine for harvesting small pelagics in Truk Lagoon.

Virgin Islands 2-335-R	Ralf H. Boulon	Completed 1984

Commercial fisheries research and development in the U.S. Virgin Islands - To identify needs and implement management strategies to achieve the optimum sustained use of the Virgin Islands commercial marine fishery resources: Part I: Fisheries statistics of the Virgin Islands - To collect, analyze, and evaluate fisheries statistics in the U.S. Virgin Islands fisheries and so enable enhancement through planning facilities and programs. Part II: Monitoring and assessment of Virgin Islands fisheries - To identify, recommend, and implement commercial fishery management practices for the Virgin Islands marine resource.

SHELLFISH

Clams:

Arizona 4-56-D	Dave Roe	Completed 1984

Distribution and relative abundance of freshwater clams - Stock assessment of Corbicula sp. of the Colorado River.

Maryland 3-398-R	Sara V. Otto	F- 55,000 S- 18,333

Soft-clam disease and mortality investigations - Study the seasonality, prevalence, distribution, and intensity of disease conditions affecting survival of the soft-clam, Mya arenaria, resource in Chesapeake Bay. The forthcoming data from this study will help to develop the epizootiology of a known disease in a population known to be formerly disease-free.

Crabs:

Washington 1-167-R	Tom Northup	F-37,002 S-12,334

Coastal dungeness crab project - Sample crab at canneries and landings ports to collect management data.

Lobster:

Connecticut 3-374-R	Mark Blake	F- 24,686 S- 25,386

Connecticut lobster investigations - Study adult population characteristics, reproductive abnormalities, larval ecology, and juvenile abundance of American lobster in Long Island Sound.

Maine 3-370-R	James C. Thomas	F-102,590 S-102,590

Lobster stock assessment - Monitor current and previous biological and socio-economic conditions in Maine's lobster fishery, increase precision of population parameters, and study interaction of spawning stock size, egg production and nursery areas, to resultant recruitment into the commercial harvest.

New York 3-357-R	Philip T. Briggs	Completed 1984

Investigation of the American lobster in eastern Long Island Sound - Assess the size composition, sex ratios, size at maturity, movements, mortality rates and incremental growth of American lobsters in eastern Long Island Sound.

New York 3-395-R	Philip T. Briggs	F- 5,470 S- 5,470

Monitoring commercial lobster catch in Long Island Sound -Determine the size composition of the commercial American lobster catch and total mortality rates of this species in Long Island Sound.

Mussels:

Illinois 3-373-R — Richard E. Sparks — F- 7,358 S- 2,453

Effects of fleeting areas on mussel beds - Determine effects of a new river terminal and barge fleeting area on existing mussel bed in the Illinois River.

Tennessee 2-373-R — John Condor — Completed 1984

Mussel resources survey - Determine the current population of mussels in the waters of Tennessee.

Oysters:

Florida 2-407-D — Lawrence Sangaree — F-19,360 S- 6,454

Construct approximately 22 to 27 acres of new oyster reefs for the cultivation of oysters. Enhance oyster production by moving live coon oysters out of overcrowded, shallow water areas.

Maryland 3-367-R — George Krantz — Completed 1984

Monitoring and research of lethal oyster diseases in Chesapeake Bay - Define the extent of recent oyster mortalities in Chesapeake Bay and determine factors responsible for reductions up to 40-percent in yield of marketable oysters in producing areas during the 1982-1983 season.

Virginia 3-377-D — VMRC staff — Completed 1984

Development of oyster resources - Plant oyster cultch to increase the production of Virginia's commercial oyster industry which contributes in excess of $40 million annually to the State's economy.

Scallops:

Rhode Island 3-400-R — John Karlsson — F- 29,000 S- 29,000

Examination of bay scallop (Argopecten irradians) reproductive cycles - Perform histological study of gonad development and gamete transport in bay scallops collected from Rhode Island coastal ponds to ascertain differences in spawning patterns and strategies. Knowledge attained under this study regarding the variables associated with fluctuations in scallop recruitment will be useful in management and stabilization of scallop populations.

Shrimp:

Washington 1-154-R — Tom Northup — Completed 1984

Coastal pink shrimp study - Conduct survey cruises and monitor coastal pink shrimp landings to collect biological information needs for management under the MFCMA.

Others:

Georgia 2-390-R	Virginia Baisden	F- 64,500 S- 21,500

To monitor penaeid shrimp and blue crab populations in coastal Georgia estuaries in order to provide managers with timely information for decisionmaking and to increase the data base of knowledge relative to selected aspects of the life histories of Georgia's major coastal finfishes and shellfish.

Mississippi 2-393-R	Robin Overstreet	F-122,215 S- 40,738

Coastal Fisheries Monitoring & Assessment - Mississippi Coast - Assess adult finfish stocks (spotted seatrout, red drum, striped mullet, and hardhead catfish). Collect and analyze environmental data, and representatives of commercial species of marine shellfish (except oysters) and fishes occurring and captured each month providing management agencies with biological data. Determine condition of oyster reefs, number of live, marketable, spawnable oysters, incidence of diseases and predators.

Mississippi AFCS-24	Larry C. Nicholson	F- 61,000 S- 30,501

Mississippi/Alabama Cooperative Striped Bass Restoration Program - Restore the striped bass population in the Gulf of Mexico Coastal area of the states of Alabama and Mississippi by annual stocking of advanced striped bass fingerlings.

New Jersey 3-332-R	Thomas McCloy	F- 49,250 S- 49,250

Inventory of New Jersey's estuarine shellfish resources - Inventory estuarine shellfish resource and monitor annual recruitment of hard clams and oysters, evaluate efficacy of hard clam relay program.

New York 3-355-D	Stephen A. Hendrickson	F- 37,000 S- 37,000

Shellfish resource promotion - Transplant shellfish from polluted to clean waters for cleansing, introduce sexually mature shellfish to increase reproduction potential, and control grow-out and release of sub-legal size shellfish into selected New York waters for future harvesting.

New York 3-356-R	Richard E. Fox	F- 13,140 S- 13,140

Assessment of New York's shellfish resources II - Provide shellfish population density and distribution information and descriptions of shellfish industry participation to serve the needs of State and local government resource managers.

New York 3-360-D	John Hofmann	F- 43,390 S- 43,390

Shellfish sanitation control utilizing mobile laboratories III - Utilize mobile laboratories to maintain sanitary surveillance of shellfish harvest areas and processors.

Washington 1-168-R	Dennis Tufts	F- 24,300 S- 8,100

South coast marine fish/shellfish monitoring - Collect landings and biological data on groundfish, shrimp, and clams for improved resource management.

West Virginia 3-380-R	Donald J. Orth	F- 19,500 S- 10,598

Investigation of commercial invertebrate bait harvest in the New River, West Virginia - Determine the extent and nature of commercial bait harvesting of crayfish in the New River and evaluate impacts of the present and anticipated commercial harvest on sport fish populations.

STATISTICS

American Samoa 4-71-D	Henry Sesepasara	F-30,000 S- 0

Fisheries data analysis - Samples domestic catch and fish markets in Samoa.

Hawaii 4-64-D	Henry M. Sakuda	F-34,233 S-34,233

Commercial fishery statistics - The project will allow the State of Hawaii to compile and distribute current information on the Hawaiian commercial fisheries for stock assessment and monitoring purposes.

Kansas 2-401-R	Jim Stephens	F-20,000 S- 6,667

Kansas marketable fisheries investigation - Collect and report aquatic statistics on an annual basis. Determine and apply approaches necessary for management recommendations. Provide scientific informational base to manage commercial aquatic resources. Prepare report of marketable investigation.

Maine 3-396-D	Kent Glover	F- 12,632 S- 12,633

Collection of landings data and biological sampling of commercial fisheries landings - To collect and analyze commercial fisheries landings data by species and gear from Maine coastal ports between Rockland and the Canadian border. Landings samples will also be collected for groundfish, sea herring, and selected shellfish species to provide management information on biological parameters including size, age, sex ratio, and fecundity.

Maryland 3-345-D	Howard J. King	F- 64,823 S- 64,823

Maryland fisheries statistics - Maintain a comprehensive catch reporting system for Maryland commercial fisheries.

Massachusetts 3-371-D	Charles O. Anderson, Jr.	69,563 37,325

Collection, compilation, evaluation, and dissemination of Massachusetts fishery statistics - Collect and analyze commercial fisheries landings data, and establish an EDP center to assist in program evaluation.

Minnesota 3-392-D	Floyd A. Hennagir	F- 6,875 S- 2,292

Computerizing Minnesota commercial fishing statistics- Develop computer capability for analyses of Minnesota's commercial fisheries statistics.

Missouri 2-363-R	John W. Robinson	Completed 1984

Research and management of Missouri's commercial fisheries resources - Determine the number of commercial fishermen, pounds of fish harvested, and the wholesale value for Missouri's River commercial fisheries. Project I: Missouri's commercial fishery harvest - To determine the number of commercial fishermen, pounds of fish harvested, and the wholesale value for Missouri's River commercial fisheries. Project II: Maintenance, enhancement, and evaluation of commercial fisheries habitat created in the Missouri and Mississippi River through agency coordination - To preserve and enhance Missouri's commercial fisheries by motivating the various construction agencies to preserve and restore fish habitat in future and on-going projects and to assist in evaluating these efforts. Project III: The development of a qualitative system to evaluate Missouri's commercial fish populations - To select population parameters and establish acceptable levels of each which would provide a qualitative method of assessing the status of important commercial fish species populations such as carp, buffalo, sp., catfish sp., and freshwater drum in the Missouri River and to determine the most effective sampling methods and techniques to obtain a representative sample for assessing those populations.

New Hampshire 3-381-D	John Nelson	F- 32,200 S- 10,733

Statistical data acquisition program for the marine fisheries of New Hampshire - Collect catch and effort data for the New Hampshire lobster and finfish commercial fisheries essential for the development of appropriate fishery management measures.

New York 3-391-D	David J. Fallon	F - 20,000 S — 20,000

Enhancement of statistical programs for New York's commercial fisheries - Identify common state and federal fisheries management data needs that relate to New York's commercial fisheries and develop the capability to incorporate data generated through existing programs into an electronic data information system.

Northern Marianas 4-66-D	Nicolas Guerrero	F- 46,000 S- 6,913

Fisheries data collection program II - Implementation of the CNMI data collection system.

Trust Territory 4-68-D	Steven Muller	F- 18,000 S- 6,000

Marshall Islands Data Collection - Develop data collection system for the Marshall Islands.

Trust Territory 4-69-D — Mike Gawel — F- 40,000 S- 13,334

Regional standardization of catch data - Develop data collection system for the Federated States of Micronesia.

Virginia 3-361-D — Paul J. Anninos — F-105,900 S- 35,300

Fisheries Resource Statistics and information Systems - Continue efforts in the collection of Virginia's commercial finfish and shellfish catch statistics and harvestor employment information.

REGIONAL HIGHLIGHTS

The Grant-in Aid for Fisheries programs (P.L. 88-309, P.L. 89-304) have, since their inception, provided financial assistance to the States and territories for purposes of developing and enchancing the commercial and anadromous fisheries of the United States. Most of the funds have been used for acquiring resource and fisheries information needed for management decisionmaking. Prior to 1976, the funds were directed almost exclusively at the management of intra-and interstate fisheries. Since the passage of the Magnuson Fishery Conservation and Management Act of 1976, however, the percentage of the Federal funds directed at cooperative State-Federal management of the fisheries which fall under the purview of that Act has increased to approximately 60 percent. The following regional highlights describe the contributions these programs make to the management of the commercial and anadromous fisheries of the United States.

NORTHEAST REGION

Results of projects funded under the Grant-In-Aid Program, in addition to enabling state fishery agencies to address priority research needs of finfish and shellfish resources regulated under single state jurisdiction, have provided valuable contributions toward multi-state management of shared commercial and anadromous fishery stocks. The exchange and dissemination of P.L. 88-309/P.L. 89-304 data resulting from cooperative state-federal fishery restoration efforts, as well as from similar joint initiatives between the state/university/private sectors, has also fostered the development of an effective "communications pathway" to assure a public and timely awareness of resource problems and concerns. The following summary presents a brief overview of some notable project activities in the Northeast Region to highlight these Program accomplishments during 1984.

Studies conducted in eight states (MA, RI, CT, NY, NJ, MD, VA, and NC) under the Section 7 provisions (commonly referred to as the "Chafee Amendment") of the Anadromous Fish Conservation Act are continuing to provide updated information concerning the biological status of Atlantic coastal striped bass populations. From these emergency studies, which were authorized by Congress in 1979 in response to evidence which indicated an overall decline in the harvest and abundance of the coastal stocks, a data base is evolving which will help evaluate the effectiveness of recently enacted management and regulatory measures adopted by the Atlantic Coastal States. Recent project findings have shown a continuing decline in the number of year classes which significantly contribute to the commercial and recreational landings, and have substantiated a need to further restrict current levels of fishing mortality. Accordingly, the Atlantic States Marine Fisheries Commission in 1984, adopted an amendment to the Interstate Plan for Striped Bass which incorporated additional (interim) regulatory measures to enhance the production of the Chesapeake Bay spawning population. Other cooperative efforts under the Emergency Striped Bass Study are being directed toward stock identification methods. To determine the relative contributions of the Hudson and Chesapeake stocks to the coastal landings, the States of Rhode Island, Connecticut, New York, and Maryland have collected fish samples from their respective fisheries and have provided specimens to the University of Rhode Island for electrophoretic analyses of eye lens proteins. Data are presently being evaluated in an attempt to reliably discern geographical and seasonal variability in stock composition.

American shad and river herring (alosids) are other Northeast Regional fisheries which are receiving increased attention by state fishery agencies under the Grant-In-Aid Program. Similar to striped bass, these species are also declining in abundance, particularly in the last decade in and south of the Chesapeake Bay Region. In an attempt to arrest further declines and restore these species to their native range, project investigators in Massachusetts, New Jersey, and Maryland have identified riverine barriers

which prevent the successful upriver migration of anadromous fish to historical spawning grounds. As a result of these investigations, passage facilities (fish ladders) to allow adult and juvenile fish to freely negotiate their freshwater habitat have either been proposed or constructed. In Maryland, the Department of Natural Resources has identified potential problem conditions which may adversely affect anadromous fish production. These conditions include watershed and stream alterations (channelization, dredging, etc.), shore/floodplain activities (logging, filling, etc.) and sewage outfalls. In such cases, when a condition is found to be adverse or in violation of state law, notification is submitted to the appropriate regulatory agency for corrective action.

In Maine, grant activities were continued to determine abundance indices for alosids and assess the potential for enhancement of these populations in state coastal waters. During 1984, a draft strategic plan was prepared by the Department of Marine Resources for restoration of anadromous fish to their historical range in the Kennebec River. Current restoration objectives include an annual production of 6 million alewives and 750,000 American shad in this watershed. Projected exploitation rates are expected to result in an annual recreational catch of 72,500 adult shad (72,500-145,000 angler days) and an annual commercial harvest with a landed value ranging from $272,000-$362,500.

Also in 1984, a grant was awarded to the Atlantic States Marine Fisheries Commission and the 15 Atlantic Seaboard States (Maine through Florida) for the joint preparation of a strategic plan for conservation of the alewife, blueback herring, and American/hickory shad coastal stocks. This project is expected to develop a coastwide, coordinated approach for effectively managing these stocks which support both sport and commercial fishing activities and serve in an important ecological role as food for larger fresh and saltwater species.

Under P.L. 88-309, coastal fishery resource assessment projects were continued in Massachusetts and Rhode Island. These studies, designed to monitor spatial and temporal fluctuations in commercial finfish and shellfish populations, furnish data essential for management of interjurisdictional fishery stocks. Information collected from these inshore surveys is of value in developing the capability to predict or forecast future species abundance. For example, assessment data is utilized by the New England Fishery Management Council to determine the biological status of groundfish stocks regulated under the Magnuson Fishery Conservation and Management Act. During 1984, the Massachusetts survey incorporated additional activities for an annual assessment of the Gulf of Maine northern shrimp stock. Through a cooperative agreement with Maine and New Hampshire, the shrimp data is evaluated by the three states and the National Marine Fisheries Service for the subsequent formulation of appropriate management measures. This initiative is conducted under the provisions of the Atlantic States Marine Fisheries Commission Compact (Amendment No. 1). Fish samples collected under the project also provide a valuable source of specimens for coastal groundfish pathology investigations conducted by the National Marine Fisheries Service and winter flounder disease studies being performed by Rutgers University. Additionally, analysis of historical survey data is currently being coordinated with the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency to assess the effects of continued dredge disposal on the fishery resources in Stellwagon Basin.

Inland fishery assessment studies are conducted under P.L. 88-309 in Lake Superior (Minnesota), Lake Michigan (Indiana, Michigan, Wisconsin), Lake Erie (Ohio, Pennsylvania), Lake Champlain (Vermont), and the Ohio river (West Virginia). Interagency coordination of fisheries research and management concerns represents a considerable contribution by these grant-in-aid projects. For example, the West Virginia Department of Natural Resources provides assistance in a cooperative program with the Ohio River Valley Water Sanitation Commission and the U.S. Environmental Protection Agency to determine pesticide, PCB, and trace element concentrations in Ohio River fish. Channel catfish are collected from specified locations and shipped to the U.S. Food and Drug Administration Laboratory in Cincinnati, Ohio for these analyses which, when compared to previous P.L. 88-309

investigations, reflect trends toward or away from contaminant levels affecting human consumption. With regard to the Lake Michigan commercial chub fishery, stocks declined dramatically in the early 1970's. This condition prompted a lakewide closure of the chub season in 1976. A Wisconsin assessment program began in 1973 and was coordinated with the States of Michigan, Illinois, and Indiana through the Great Lakes Fishery Commission. Under P.L. 88-309, the Wisconsin Department of Natural Resources has monitored the commercial fishery to acquire the needed data to annually calculate harvest quotas based on surplus production. Since 1979, the chub stocks have continued to recover and in 1983, the harvest quota was increased to 2.5 million pounds. The Department's objective is to sustain, by 1991, an annual harvest of 4.0 million pounds, with an estimated dockside value of approximately $3.0 million. Assessment of yellow perch populations is being conducted by three Great Lakes States under P.L. 88-309. A study by Ball State University, in cooperation with the Indiana Department of Natural Resources, is evaluating the status of the Lake Michigan stock to provide information essential to the formulation of regulatory policy resulting in wise and perpetuated use of the resource. In Pennsylvania, where the Lake Erie commercial fishery lands and markets from 256,000 to 486,000 pounds annually, project personnel are continuing studies to conclusively describe the maximum rate of yellow perch harvest while insuring stability in productivity. The Ohio State University, in cooperation with the Ohio Department of Natural Resources, is conducting studies to determine whether management models for yellow perch can be improved by examining the relative importance of food availability and temperature as factors causing differences in growth rate between the western and central basins of Lake Erie populations. While the Lake Erie fisheries are currently managed by individual state and Provincial (Ontario) agencies, the P.L. 88-309 results will be instrumental in the anticipated development of a cooperative international management plan for yellow perch.

SOUTHEAST REGION

The 17 states, the Commonwealth of Puerto Rico and the U.S. Virgin Islands that constitute the Southeast Region represent a great diversity of fishery populations. This Region is one of the greatest producers of commercial and recreational fishery resources for the benefit of the nation. In 1984, the Southeast Region continued to maintain abundant commercial fishery resources for the benefit of users. The $4.3 million in P.L. 88-309 and P.L. 89-304 (including resource disaster funds) allocated to the states of the Southeast Region were expended to support the management of marine and freshwater fishery resources valued at over $2.5 billion.

The Inland States continued P.L. 88-309 projects for the enhancement and management of stream and reservoir commercial fisheries. Kentucky, Nebraska, Missouri, Arkansas, Oklahoma and Kansas monitored commercial fisheries in streams and/or reservoirs for commercial fisheries management. New Mexico continued to test methods for mass-harvesting of commercial species from small reservoirs. Iowa and Nebraska tested and implemented new methods for monitoring the status of Mississippi and Missouri Rivers commercial fisheries. Tennessee completed the survey of the distribution and abundance of important shellfish resources. Nebraska continued to test a new method to optimize the commercial harvest of reservoir fishes. Iowa implemented a new project to develop methods to intensify the commercial aquaculture of channel catfish and walleye.

The ten Coastal States continued to develop a data base for the management of important marine fisheries. The information accumulated from P.L. 88-309 sponsored projects not only supported the management of commercial fisheries in the state's territorial waters; but, the information was also important in developing, implementing and evaluating fishery management plans of the South Atlantic, the Caribbean, and Gulf of Mexico Fishery Management Councils. The Gulf of Mexico States utilized P.L. 88-309 projects to monitor the ecology of king mackerel, spiny lobster, stone crab, shrimp and other finfish.

The South Atlantic States continued fishery resource monitoring activities in support of the Territorial Sea and U.S. Fishery Conservation Zone fishery programs. Georgia is conducting research and assessment of shrimp and finfish. North Carolina continued the Atlantic croaker tagging life history investigation and finfish assessment work. South Carolina completed a biological assessment of the knobbed whelk fishery. All of these P.L. 88-309 activities are adding important data for the management of interjurisdictional fisheries of the Territorial Sea and U.S. Fishery Conservation Zone.

The U.S. Virgin Islands and the Commonwealth of Puerto Rico continue to gather information on reef fisheries. Spiny lobster, finfish and shellfish fisheries were monitored to provide data for management in conjunction with the Caribbean Fishery Management Council. Both Puerto Rico and the U.S. Virgin Islands conduct programs to determine the weight and value of commercial fisheries landings.

Alabama, Mississippi, South Carolina, North Carolina and Auburn (Alabama) University participated in the Anadromous Fish Conservation Program (P.L. 89-304) in 1984. Alabama and Mississippi continued their cooperative striped bass program with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service to restore coastal striped bass populations to their historic levels. Populations of striped bass are now becoming abundant and a recreational fishery for "stripers" has developed in both states. North Carolina and South Carolina continue to monitor anadromous fisheries to determine their status, harvest and abundance. These data provide a basis for state and interjurisdictional fishery management programs for anadromous fisheries in the Southeast Region.

Because of severe flooding in 1982-1983 that damaged oyster resources, Alabama, Louisiana and Mississippi engaged in a massive oyster resource restoration and rehabilitation program. A large increase in oyster production is anticipated within the next 18-24 months in these states due to these efforts.

NORTHWEST REGION

In FY84, the nine states comprising the Northwest Region received $380,700 under the Commercial Fisheries Research and Development Act (P.L. 88-309) and $1,200,000 under the Anadromous Fish Conservation Act (P.L. 89-304). One-third of the Regional P.L. 88-309 allocation supported projects for the fisheries agencies of the seven inland states, Colorado, Idaho, Montana, North Dakota, South Dakota, Utah and Wyoming. The balance of appropriated funds supported Oregon and Washington projects vital to the management of the major commercial ocean fisheries of the Northwest - salmon, groundfish, pink shrimp and dungeness crab.

P.L. 88-309-supported programs on the inland waters in FY83 were evenly divided between those contributing to improved harvest management strategies in large mainstem reservoirs, and those contributing information needed to develop or maintain successful fish culture efforts. Due to the continuing uncertainties of funding, few new, multiyear projects were initiated in 1984.

Reservoir stock assessment studies which served to refine and update the existing data base on buffalo fish, goldeye, suckers and carp were continued in Montana and Wyoming. South Dakota conducted further studies on the abundance and distribution of rainbow smelt populations using hydroacoustic survey methods. Utah initiated a disease monitoring and certification program for commercial trout hatcheries, while Idaho made considerable progress in defining the epidemiology of proliferative kidney disease in certain Hagerman Valley trout hatcheries.

Eighty-five percent of P.L. 88-309 funds provided to Washington and Oregon were utilized in regional pink shrimp and groundfish stock assessment studies, and for catch data collection. A Pink Shrimp Management Plan developed by the Pacific Fishery

Management Council (PFMC) now serves as the basis for coastwide management of the shrimp fishery through a multistate cooperative effort. The PFMC Groundfish Management Plan has been in effect coastwide since late 1982. Sampling and biological data collection activities are required for the continual updating of the data base for both pink shrimp and groundfish, and receive major support from P.L. 88-309 funds. Washington's regulation of the dungeness crab fishery depends heavily upon the results of a shell condition monitoring program maintained by CFRD funds.

Historically, the Pacific Salmon fishery is the largest and most controversial fishery in the Northwest. Problems are a result of dwindling stocks, a highly mobile and overcapitalized commercial fishing fleet, treaty obligations, and the necessary interaction of a myriad of affected state and Federal management entities. The ocean fishery has been regulated and coordinated under a Pacific Fishery Management Council FMP amendment since 1978. Management of mixed stocks, some of which are more depleted than others, requires continuous monitoring of the catch to meet escapement and allocation goals. As data needs have become more critical, P.L. 89-304 program emphasis has moved sharply away from enhancement techniques and basic research.

In 1984, 27 percent of the coastal states P.L. 89-304 funds were used for applied research. Oregon continued monitoring the natural and artificial production of chinook and coho in coastal streams, and conducted studies to determine the limiting factors in the estuarine and ocean survival of salmonids. Washington increased efforts to develop capability in genetic stock identification (GSI) methods. If successful, GSI could replace the coded wire tag as a means of tracking the migration and contribution to the fishery of salmon stocks coastwide.

Seventy three percent of P.L. 89-304 funds were utilized in projects that contribute fisheries data required for MFCMA management. Fifty per cent of the funds dedicated to such projects were utilized for the collection of landing statistics and biological data. Twenty-six percent was utilized for the recovery and decoding of coded wire tags and laboratory scale analysis. The balance was used for tagging operations (11%) and for data processing and reporting (13%).

SOUTHWEST REGION

Two new data collection projects were begun in 1984, one in the Marshall Islands and one in the Federated States of Micronesia. The purpose of the two projects is to develop and implement a fisheries data collection system for the respective areas. In the last few years, five projects under the Commercial Fisheries Research and Development Act have been developed to establish data collection systems in Palau, the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia, and the Marshall Islands. Projects in Hawaii and American Samoa have sought to improve existing systems.

These efforts have been coordinated by the Southwest Fishery Center, Honolulu Laboratory, to ensure the statistical integrity of the sampling approach and compatability of the various systems with the Western Pacific Fisheries Information Network so that all areas in the Western Pacific can take advantage of rapid and accurate exchange of fisheries data.

In February, 1984, a project was begun in American Samoa to build and deploy nine fishery aggregation devices. The floating devices have wide support throughout the Western Pacific as a means to improve catch per unit of effort. Many different designs have been utilized with varying degrees of success. The short life span of many devices has reduced the benefits that might have been attained and has pointed to the need for improved engineering.

A step to resolve the engineering problem was taken by the South Pacific Commission. The commission sought the help of the Data Buoy Center of the National

Oceanic and Atmospheric Administration to develop an improved mooring design to prolong the life of the aggregation devices and reduce costs. The design that was developed is being employed and monitored in American Samoa under the grant program. Once a reliable design is developed, the actual value of fish aggregation devices as a means of increasing the domestic catch may be determined.

ALASKA REGION

In FY 1984, the Alaska Region received $505,000 under the Anadromous Fish Conservation Act (P.L. 89-304) and $240,000 under the Commercial Fisheries Research and Development Act (P.L. 88-309). The Region apportioned $475,000 of P.L. 89-304 money to the Alaska Department of Fish and Game (ADF&G) and $30,000 to the University of Washington's Fishery Research Institute. The Region apportioned all of the P.L. 88-309 money to the ADF&G. These P.L. 89-304 and P.L. 88-309 monies funded research projects directed at the management of certain segments of Alaska's commercial salmon and groundfish fisheries, respectively. The salmon segments included fisheries for sockeye, pink, chum, and coho, and chinook salmon; the groundfish segments included groundfish in the Gulf of Alaska and Pacific herring in the Gulf of Alaska and in the Bering Sea. Salmon fisheries that the salmon projects supported had a total exvessel value of $75.6 million. Groundfish fisheries that the groundfish projects supported had an exvessel value of $4.1 million.

Each salmon project continues to yield excellent information needed by managers to make pre- and in-season decisions on how best to manage the fisheries. Tagging wild coho salmon with coded wire tags and then retrieving the tags continues to yield valuable information about the migration routes and timing of different coho salmon stocks in the fishery. Recent expansion of these studies to include stocks in northern Southeast Alaska is expected to contribute greatly to the evaluation and refinement of management techniques. Index sampling of sockeye salmon returning to the Chilkat and Chilkoot Lakes in Southeast Alaska is yielding information used to estimate the run size of each stock that will allow management of the commercial harvest of each stock in proportion to the run size. The data base for regional catches and escapements of pink salmon is improving, which will enhance forecasting of run strengths and evaluations of pink salmon escapement techniques. The data base on total abundance and age composition of sockeye salmon returning to the Chignik Lake system on the Alaska Peninsula is being refined and updated to determine more information on late runs.

Groundfish and herring projects continue to provide data fundamental for inseason management decisions concerning the commercial groundfish fisheries. Landings of groundfish at southeast Alaska ports are being documented to make accurate predictions about the progress of the fisheries. Biological information on species composition, sex, and size is being collected to determine recruit and prerecruit age class strengths and to delineate groundfish stocks. The southeast Alaska herring project is yielding information about biomass estimates on a real time basis to allow managers to open and close the herring fishery within a short time period. The Bristol Bay project, which expired early in 1984, yielded timely information on the composition, size, and sexual maturity of herring returning to Bristol Bay. That project also allowed fishery openings and closures within a short time period.

ADMINISTRATIVE ORGANIZATIONS

NON FEDERAL COOPERATORS

State	Agency	Address
Alabama	John W. Hodnett, Commissioner Department of Conservation and Natural Resources	State Administration Building 64 North Union Street Montgomery 36130
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American Samoa	Office of Marine Resources Government of American Samoa	Pago Pago 96799
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Arizona	Fred Baker, Commissioner Game and Fish Department	2222 West Greenway Road Phoenix 85023
Arkansas	Steve N. Wilson, Director Game and Fish Commission	2 Natural Resources Drive Markham & I-430 Little Rock 72205
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PUBLICATIONS*

In carrying out project activities about 300 State scientists are continuously employed to gather information for better management of the fishery resources and to solve fishery problems. These studies have resulted in 734 publications, of which 644 have appeared in scientific journals and 94 have been for partial fulfillment of the requirement for advanced degrees from educational institutions. The literature citations list the project numbers in parentheses.

Some of the reports are available from the National Technical Information Service (NTIS). NTIS sells these reports as either paper or microfiche copies. Its address is:

National Technical Information Service
U.S. Department of Commerce
Springfield, VA 22151

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